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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,632	01/14/2002	Albertus Cornelis Den Brinker	NL 010477	4801

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P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
HARPER, V PAUL	

ART UNIT	PAPER NUMBER
2654	

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/046,632	DEN BRINKER, ALBERTUS CORNELIS	
	Examiner	Art Unit	
	V. Paul Harper	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2006*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 2, 3, 9, 10, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edler et al. ("Audio Coding Using a Psychoacoustic Pre- and Post-filter", Proc. ICASSP 2000), hereinafter referred to as Edler, in view of Kleijn et al. ("Speech Coding and Synthesis", Elsevier Science, 1995), hereinafter referred to as Kleijn.

Regarding **claim 1**, Edler teaches audio coding using a psychoacoustic pre- and post-filter. Edler's teachings include the following:

- a segmentation unit (120) for segmenting said signal s into at least one single scale segment x.sub.m(n) with m=1 . . . M and for outputting the samples x.sub.m(0), . . . , x.sub.m(L-1) of said segment x.sub.m(n) (§'s 2 and 3, audio in where Figs. 3 and 4 show sampling); and

- the segmentation unit (120) is further embodied for carrying out a frequency-warping operation in order to transform the output samples x.sub.m(0), . . . , x.sub.m(L-1)) onto a frequency-warped domain (§3, ¶2, frequency-warping technique); and
- a post-processing filter (160) is provided for re-mapping [*said sinusoidal data output from the sinusoidal estimation unit (140) (see below)*] to the original frequency domain of the signal s (§'s 2 and 3, post filter; Fig. 2, operations of decoding and post filtering restore the signal to the original frequency domain) . Edler teaches perceptual audio coding (abstract), but Edler does not specifically teach "a sinusoidal estimation unit (140) for estimating the sinusoidal code data representing said segment x.sub.m(n) from the received samples x.sub.m(0), . . . , x.sub.m(L-1))." However, the examiner contends that this concept was well known in the art, as taught by Kleijn.

In the same field of endeavor, Kleijn teaches sinusoidal coders including the sinusoidal encoding operation (p. 37, §8.2, ¶3, Fig. 11).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Edler by specifically using the technique, as taught by Edler, because it is well known in the art at the time of invention as a natural (and standard) way of encoding speech (Kleijn, §8.2, ¶1).

Regarding **claim 2**, Edler in view of Kleijn teaches everything claimed, as applied above (see claim 1). In addition, Edler teaches:

- a plurality of L-1 filters (122_1, ... 122_L-1) being connected in series for receiving the signal s(n) at the input of the first of said filters (122_1) (Figs 3 and 5); and

- a sampling unit (124) for receiving and sampling said signal s(n)=yo(n) as well as the output signals yt(n)•••yL-t(n) of said L-1 filters (122_1, ... 122_L-1) in order to generate L samples xm(0), ..., xm(L-1) or x„°, (0), ..., x„° (L-1) of the segment x_m (Figs. 3 and 5).

Regarding **claim 3**, Edler in view of Kleijn teaches everything claimed, as applied above (see claim 2). In addition, Edler teaches "at least some of the filters (122_1, ... 122_L-1) are embodied as all-pass filters" (§3, can be implemented by an allpass).

Regarding **claim 9**, this claim has limitations similar to claim 1 and is rejected for the same reasons.

Regarding **claim 10**, this claim has limitations similar to claim 1 and is rejected for the same reasons.

Regarding **claim 11**, this claim has limitations similar to claim 2 and is rejected for the same reasons.

Regarding **claim 12**, this claim has limitations similar to claim 3 and is rejected for the same reasons.

2. Claims 4, 5, 7, 8, 13, 14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edler in view of Kleijn and further in view of Harma et al. ("Frequency-Warped Signal Processing for Audio Applications," J. Audio Eng. Soc. Vol. 48, No. 11, Nov 2000), hereinafter referred to as Harma.

Regarding **claims 4 and 5**, Edler in view of Kleijn teaches everything claimed, as applied above (see claim 3). But Edler does not specifically teach "characterized in that the some (or all [for claim 5]) filters (122_1, ...122_L-l) are embodied as first-order all-pass filter each having a transfer function A(z) according to: [equation given in the claim]." However, the examiner contends that this concept was well known in the art, as taught by Harma.

In the same field of endeavor, Harma teaches frequency-warped signal processing for audio applications including the use of an all-pass filter chain given by the equation as stated in the claim (§2.1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Edler in view of Kleijn by specifically providing the us of the particular transfer function, as taught by Harma, because it is well known in the art at the time of invention for the purpose of implementing a warping filter (Harma, §2).

Regarding **claim 7**, Edler in view of Kleijn teaches everything claimed, as applied above (see claim 2). But Edler does not specifically teach the following: "in the

segmentation unit (120) the plurality of L-1 filters (122_1, . . . 122_L-1) being connected in series is embodied as tapped delay-line with each of the filters having a transfer function of $A(z)=z.^{-1}$; and there is additionally provided a bi-lateral warping unit (126) for transforming the samples on the original frequency-domain of the signal s $x^{\circ}_m(-N_1)$, . . . , $x^{\circ}_m(N_2)$ output by the sampling unit (124) into transformed samples $x_m(-M_1)$, . . . , $x^{\circ}_m(M_2)$ on a frequency-warped domain by applying a bi-lateral frequency warping operation to the samples $x^{\circ}_m(-N_1)$, . . . , $x^{\circ}_m(N_2)$ and for outputting the transformed samples $x_m(-M_1)$, . . . $x_m(M_2)$ to said sinusoidal estimation unit (140)." However, the examiner contends that this concept was well known in the art, as taught by Harma.

In the same field of endeavor, Harma teaches frequency-warped signal processing for audio applications including warping as a conformal bilinear mapping (the use of an all-pass filter chain given by the equation as stated in the claim (§2.1-2.4, see equations 14-19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Edler in view of Kleijn by specifically providing the us of the particular transfer function, as taught by Harma, because it is well known in the art at the time of invention for the purpose of implementing a warping filter (Harma, §2).

Regarding **claim 8**, Edler in view of Kleijn and Harma teaches everything claimed, as applied above (see claim 7). In addition, Harma teaches the use of transforms that implement the equation given in claim 8 (§2.1-2.4).

Regarding **claim 13**, this claim has limitations similar to claim 4 and is rejected for the same reasons.

Regarding **claim 14**, this claim has limitations similar to claim 5 and is rejected for the same reasons.

Regarding **claim 16**, this claim has limitations similar to claim 7 and is rejected for the same reasons.

Regarding **claim 17**, this claim has limitations similar to claim 8 and is rejected for the same reasons.

3. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edler in view of Kleijn and Harma and further in view of Oppenheim et al. ("Computation of Spectra with Unequal Resolution Using the Fast Fourier Transform," Proc. IEEE, vol. 59, pp. 299-301, Feb. 1971), hereinafter referred to as Oppenheim.

Regarding **claim 6**, Edler in view of Kleijn and Harma teaches everything claimed, as applied above (see claim 4). But Elder in view of Kleijn and Harma does not specifically teach "the first filter (122_1) in said series connection receiving the signal s(n) has a transfer function A0(z) [1st equation given in claim]; and the second

filter (122_2) in said series connection following said first filter (122_1) has a transfer function A 1(z) according to: [2nd equation given in claim] the remaining filters (122_3...122_L-1) each are first order all-pass filters having a transfer function A(z) according to claim 4." However, the examiner contends that this concept was well known in the art, as taught by Oppenheim.

In the same field of endeavor, Oppenheim teaches a technique for the computation of spectra with unequal resolution using fast Fourier transform. Oppenheim further teaches the use of filters as stated in claim 6 (Fig. 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Edler in view of Kleijn and Harma by specifically providing particular network, as taught by Oppenheim, because it is well known in the art at the time of invention for the purpose of implementing a warping filter (Oppenheim, abstract, ¶1).

Regarding **claim 15**, this claim has limitations similar to claim 7 and is rejected for the same reasons.

Response to Arguments

4. Applicant's arguments filed 1/04/2006 have been fully considered but they are not persuasive.

5. Applicant asserts on page 10:

> First, it is noted that the noted portion of Kleijn, et at. discloses sinusoidal coders. To wit, section 8.2 is drawn to a description of sinusoidal coders and a technique using a Fourier series to reconstruct a signal. *There is no description of a sinusoidal estimation unit adapted to estimate sinusoidal code data representing a segment from the received sample as claimed.* For at least this reason, it is respectfully submitted that the reference to Kleijn, of at lacks at least the' disclosure of at least one of the features of independent claims 1 and 10. Accordingly, a prima facie case of obviousness has not been established and this rejection should be withdrawn. (Italics added)

As indicated by Kleijn et al. in Figure 11 (p. 38), an FFT is performed on a windowed segment [segment $x_m(n)$] with further processing performed to quantize the spectrum. Kleijn et al. further state (in the last paragraph on page 37) that "the magnitudes, the phases, and the frequencies of this sparse spectrum are quantized, and their quantized indices [sinusoidal code data] are transmitted to the decoder." The examiner maintains that these operations correspond to "a sinusoidal **estimation unit** adapted to estimate the sinusoidal code data representing the segment $x_m(n)$ from the received samples...."

6. Applicant further asserts on page 10:

> Second, the requirements of a prima facie case of obviousness include the teaching, suggestion or motivation to combine references found in the references themselves or in the knowledge generally available to one of ordinary skill in the art. The rejection merely notes that the noted feature of claims 1 and 10 is missing from the reference to Edler, et at and contends that it is a well known concept in the art, noting Kleijn, et al. There is no proffered teaching, suggestion or motivation supplied. Rather, the Examiner merely states that because the feature is (allegedly) known, it would have been obvious to combine the references to realize the invention. This is wholly improper. The Examiner is merely attempting to cobble a rejection from the references and applies hindsight motivation to adhere the pieces from the applied references. As noted, the reference to Kleijn, at al. lacks at least the noted feature of claims 1 and

10. Moreover, there is no teaching, suggestion or motivation provided to combine these references provided as required. Therefor:, this rejection is improper and should be withdrawn.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Kleijn et al.'s article is titled "An Introduction to Speech Coding" (underlining added) clearly implying techniques that are well known in the art [and commonly applied—i.e., standard]. Furthermore, as the above rejections of claims 1, 9 and 10 indicate, Kleijn et al. states that the techniques are "particularly natural" when applied to voiced speech (p. 37, §8.2, ¶1). Thus the examiner maintains that the motivation to combine is both taught in the reference and well known in the art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Paul Harper whose telephone number is (571) 272-7605. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

02/06/2006

V. Paul Harper
Patent Examiner
Art Unit 2654